ABSTRACT OF THE DISCLOSURE

OCULAR FIXATION AND STABILIZATION DEVICE FOR OPHTHALMIC SURGICAL APPLICATIONS

A disposable stabilization and applanation device for reconfiguring the cornea of an eye for ophthalmic laser surgery, includes an applanation lens that is disposed in a particular spatial position with respect to an incident laser beam. The applanation lens is inserted into the central opening of an attachment ring and applanates the eye in response to pressure from a lens cone. The attachment ring is coupled to the eye and includes a skirt which surrounds the applanation lens and extends outwardly therefrom to define a chamber. The skirt is formed with a groove which defines a suction channel between the attachment ring skirt and the corneal surface of an eye. A vacuum source is connected and fluid communication with the suction channel and is selectively activated to create a partial vacuum in the channel. In operation, the attachment ring is coupled to the cornea by application of suction and the applanation lens lowered into contact with the cornea through the attachment ring's central opening. A gripper structure surrounds the applanation lens and attachment ring and applies a compressive force to both components, thereby coupling the two components together. An ophthalmic surgical laser connected to the lens cone is then positioned in a well-characterized three-dimensional relationship with the applanated surface of a patient's eye.